

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Currently Amended) A composite antenna device comprising:

a ground board;

an unbalanced antenna including

a first feeding point electrically coupled with the ground board,

a first radiator having a first end and a second end, the first end of the first radiator being connected with the first feeding point,

a load conductor connected with the second end of the first radiator, the

load conductor intersects a straight line which also passes through the first

feeding point and which is perpendicular to the ground board, the load

conductor has a shape symmetrical about the straight line; and

a balanced antenna including

a second feeding point electrically isolated from the first feeding point,

a second radiator connected with the second feeding point, and

a third radiator connected with the second feeding point,

wherein the second radiator and the third radiator are placed at positions symmetrical to each other about the straight line, respectively, and have shapes symmetrical to each other about the straight line.

2. (Previously Presented) A composite antenna device according to claim 1,

wherein the shape of the load conductor is electrically symmetrical about the straight line passing through the first feeding point, and

wherein the second radiator and the third radiator are placed at positions electrically symmetrical to each other about the straight line, respectively, and have shapes electrically symmetrical to each other about the straight line.

3. (Previously Presented) A composite antenna device according to claim 1,

wherein the shape of each of the load conductor and the first radiator is symmetrical about a plane intersecting the straight line, the plane extending perpendicular to the ground board and passing through the first feeding point, and

wherein the second radiator and the third radiator are placed at positions symmetrical to each other about the plane, respectively, and have shapes symmetrical to each other about the plane.

4. (Previously Presented) A composite antenna device according to claim 3,

wherein the shape of each of the load conductor and the first radiator is electrically symmetrical about the plane, and

wherein the second radiator and the third radiator are placed at positions electrically symmetrical to each other about the plane, respectively, and have shapes electrically symmetrical to each other about the plane.

5. (Currently Amended) A composite antenna device comprising:

a ground board;

an unbalanced antenna including

a first feeding point electrically coupled with the ground board,

a first radiator having a first end and a second end, the first end of the first radiator being connected with the first feeding point, and

a load conductor having a first end, a second end, and a connection point where the load conductor is connected with the second end of the first radiator, the load conductor intersects a straight line which also passes through the first feeding point and which is perpendicular to the ground board;

a balanced antenna including

a second feeding point electrically isolated from the first feeding point,

a second radiator connected with the second feeding point, and

a third radiator connected with the second feeding point,

wherein the load conductor of the unbalanced antenna includes a first portion and a second portion, the first portion of the load conductor being provided between the first end of the load conductor and the connection point, the second portion being provided between the second end of the load conductor and the connection point, and

wherein an impedance Z_{11} of the first portion of the load conductor, a mutual impedance Z_{12} of the second radiator to the first portion of the load conductor, a mutual impedance Z_{21} of the first portion of the load conductor to the second radiator, an impedance Z_{22} of the second radiator, an impedance Z_{33} of the second portion of the load conductor, a mutual impedance Z_{34} of the third radiator to the second portion of the load conductor, a mutual impedance Z_{43} of the second portion of the load conductor to the third radiator, and an impedance Z_{44} of the third radiator satisfy the relation of

$$\begin{pmatrix} Z_{11} & Z_{12} \\ Z_{21} & Z_{22} \end{pmatrix} = \begin{pmatrix} Z_{33} & Z_{34} \\ Z_{43} & Z_{44} \end{pmatrix}.$$

6. (Original) The composite antenna device of claim 5, wherein a mutual impedance Z_{14} of the third radiator to the first portion of the load conductor, a mutual impedance Z_{41} of the first portion of the load conductor to the third radiator, a mutual impedance Z_{23} of the second portion of the load conductor to the second radiator, and a mutual impedance Z_{32} of the second radiator to the second portion of the load conductor satisfy the relation of

$$\begin{pmatrix} Z_{11} & Z_{14} \\ Z_{43} & Z_{44} \end{pmatrix} = \begin{pmatrix} Z_{22} & Z_{23} \\ Z_{32} & Z_{33} \end{pmatrix}.$$

7. (Previously Presented) The composite antenna device of claim 3, wherein the plane extends along the first radiator.

8. (Previously Presented) The composite antenna device of claim 4, wherein the plane extends along the first radiator.

9. (Currently Amended) A composite antenna device according to claim 1, wherein the unbalanced antenna is between the balanced antenna and the ground ~~plane~~board.

10. (Currently Amended) A composite antenna device according to claim 5, wherein the unbalanced antenna is between the balanced antenna and the ground ~~plane~~board.